

PROSPECTUS SUPPLEMENT NO. 7
(to Prospectus dated March 23, 2018)

169,933,626 Shares



GASTAR EXPLORATION INC.

Common Stock

This prospectus supplement is being filed to update and supplement information contained in the prospectus dated March 23, 2018, relating to the resale or other disposition of our common stock par value \$0.001 per share, which may be offered for sale from time to time by the selling stockholders named in the prospectus, with information contained in our Current Report on Form 8-K, filed with the Securities and Exchange Commission on July 23, 2018.

This prospectus supplement updates and supplements the information in the prospectus and is not complete without, and may not be delivered or utilized except in combination with, the prospectus, including any amendments or supplements thereto. This prospectus supplement should be read in conjunction with the prospectus and if there is any inconsistency between the information in the prospectus and this prospectus supplement, you should rely on the information in this prospectus supplement.

Investing in our securities involves risk. Please see “Risk Factors” beginning on page 3 of the prospectus for a discussion of certain risks that you should consider in connection with an investment in the securities.

Neither the Securities and Exchange Commission nor any state securities commission has approved or disapproved of these securities or determined if this prospectus is truthful or complete. Any representation to the contrary is a criminal offense.

This prospectus supplement is dated July 23, 2018.

UNITED STATES
SECURITIES AND EXCHANGE COMMISSION
Washington, D.C. 20549

FORM 8-K

CURRENT REPORT
PURSUANT TO SECTION 13 OR 15(D) OF THE
SECURITIES EXCHANGE ACT OF 1934

Date of Report (Date of earliest event reported): July 20, 2018

GASTAR EXPLORATION INC.
(Exact Name of Registrant as Specified in its Charter)

DELAWARE	001-35211	38-3531640
(State or other jurisdiction of incorporation)	(Commission File Number)	(IRS Employer Identification No.)

1331 LAMAR STREET, SUITE 650
HOUSTON, TEXAS 77010

(Address of principal executive offices)

(713) 739-1800

(Registrant's telephone number, including area code)

Check the appropriate box below if the Form 8-K filing is intended to simultaneously satisfy the filing obligation of the registrant under any of the following provisions (see General Instruction A.2. below):

- Written communications pursuant to Rule 425 under the Securities Act (17 CFR 230.425)
- Soliciting material pursuant to Rule 14a-12 under the Exchange Act (17 CFR 240.14a-12)
- Pre-commencement communications pursuant to Rule 14d-2(b) under the Exchange Act (17 CFR 240.14d-2(b))
- Pre-commencement communications pursuant to Rule 13e-4(c) under the Exchange Act (17 CFR 240.13e-4(c))

Indicate by check mark whether the registrant is an emerging growth company as defined in Rule 405 of the Securities Act of 1933 (§230.405 of this chapter) or Rule 12b-2 of the Securities Exchange Act of 1934 (§240.12b-2 of this chapter).

Emerging growth company

If an emerging growth company, indicate by check mark if the registrant has elected not to use the extended transition period for complying with any new or revised financial accounting standards pursuant to Section 13(a) of the Exchange Act.

SECTION 5 – CORPORATE GOVERNANCE AND MANAGEMENT

Item 5.02 Departure of Directors or Certain Officers; Election of Directors; Appointment of Certain Officers; Compensatory Arrangements of Certain Officers.

Director Resignations

On July 20, 2018, Ronald D. Scott and Nathan W. Walton notified Gastar Exploration Inc. (the “Company”) of their resignations from the board of directors (the “Board”) of the Company, effective immediately. Neither Mr. Scott’s nor Mr. Walton’s resignation results from any disagreement with the Company regarding any matter related to the Company’s operations, policies or practices.

SECTION 8 – OTHER EVENTS

Item 8.01 Other Events.

In May 2018, the Board appointed Jerry Schuyler, Randolph Coley and Harry Quarls to serve as the members of a committee of the Board (the “Strategy Committee”) to explore strategic alternatives for the Company. In addition, the Company has retained Kirkland & Ellis LLP, as legal advisor, and Perella Weinberg Partners L.P., as financial advisor, to advise the Company and assist in analyzing and evaluating financial, transactional, and strategic alternatives, including a potential restructuring of the Company’s balance sheet.

As disclosed in Amendment No. 4 to the Schedule 13D filed by AF V Energy I AIV B1, L.P. and certain of its affiliates (collectively, “Ares”), on July 20, 2018, Ares delivered a non-binding preliminary term sheet (the “Term Sheet”) to the Company proposing that the Company consider a sale of the Company or other potential restructuring transaction. At this time, the Company and its advisors are considering the Term Sheet and evaluating alternatives for recommendation to the Board.

SIGNATURES

Pursuant to the requirements of the Securities Exchange Act of 1934, the registrant has duly caused this report to be signed on its behalf by the undersigned hereunto duly authorized.

Date: July 23, 2018

GASTAR EXPLORATION INC.

By: /s/ Michael A. Gerlich

Michael A. Gerlich

Senior Vice President and Chief Financial Officer